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To: [Stephen Healy](#); [Chris Nevers](#); [Joel Ball](#); [Linc Wehrly](#)
Cc: [Khesha Reed@EPA](#)
Subject: Fw: MEETING: GM HD Diesel SCR Inducement Strategy for MY11
Date: 04/23/2009 04:00 PM
Attachments: [Warning Stgy_03Mar09_rev3.pdf](#)

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Date: 04/22/2009 09:25 AM
Subject: MEETING: GM HD Diesel SCR Inducement Strategy for MY11

Greg and Khesha,

Thanks for agreeing to meet with us again on finalizing GM's plan for SCR inducement for our MY11 HD diesel product line. We are at an acute stage of the program (timing wise) since our MY11 product is an early introduction. As you may remember, we are not producing a MY10 product, but instead going from MY09 to MY11.

I understand we have arranged the following time to meet:

SUBJECT: GM HD Diesel SCR Inducement Strategy for MY11
DATE: Friday, April 24
TIME: 1:00pm-2:00pm EST
MML:

cell
code **Conference Line #/ Ex. 6**

We will walk through the last presentation material (attached), not in detail, but to identify what is approved by EPA and what is still considered unresolved. Ideally GM would like to have all issues either resolved, or a compromised reached so we can finalize our strategy for MY11.

Per our last meeting, the identified action items/issues/decisions were (additional "subsequent" comments are in parenthesis):

For GM:

- What is the minimum vehicle speed necessary to accurately read NOx to determine

if quality urea has been added (ARB will not agree to relaxing the 5 mph final inducement - see ARB notes below)

For EPA:

- Does EPA agree with the warning and inducement strategy for level, quality and frozen tank?
- Do you agree with the quality bogie of 20%DEF/80% water, and with the quality detection strategy?
- Do you agree with GM's interpretation of tamper resistant designs/components? (ARB feels any connector/wire is inherently impossible to make tamper resistant)

As I indicated in previous emails, we had an opportunity to discuss our MY11 SCR strategy with ARB. We used the same presentation material we reviewed with EPA. Below are the decisions/issues from that discussion:

- ARB asked what constitutes (level change) a fuel fill? ARB indicated that we need to be consistent with the guidance and they expect the % change to be less than 40% (where we are today). **CBI / Ex. 4**

CBI / Ex. 4

- ARB indicated they will scrutinize any inducement based on a single sensor (need redundancy or significant robustness). This was highlighted by the vehicle speed sensor. If the vehicle speed sensor is lost, the default would eliminate the vehicle speed inducement (55 mph limit or 5 mph limit). The system needs to have a secondary means to limit speed or torque. After much debate, the team felt this would require a virtual vehicle speed calculation **CBI / Ex. 4** GM

CBI / Ex. 4

- ARB will consider and respond.

- ARB asked if the "0% pump pressure" referenced in level #9 of the DEF Level strategy was regarding fuel pump pressure. The answer is no, it refers to DEF pump pressure. GM indicated we'd fix the documents to clarify this.

- ARB asked if we could meet the EPA guidance for freeze protection, but just at idle. **CBI / Ex. 4** (starting with frozen tank, idle 70 minutes, be able to inject urea).

CBI / Ex. 4

- ARB feels if a customer has poor quality urea, it's the customers fault. **CBI / Ex. 4**

CBI / Ex. 4

- ARB's feels any wiring/connector is not tamper resistant, regardless if it takes extraordinary measures to disconnect or cut wires.
- ARB will review the complete strategy and provide feedback on what is and is not acceptable (other than noted above).

Hopefully, with this background and our discussions on Friday, we can develop a cooperative plan to timely complete GM's SCR strategy for MY11.

Thank you,

Andy Barren
General Motors



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